HUM 3585.01: Philosophy of Science

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Office Hours: Tuesday & Thursday, 12:30–2 pm & 6.15–7 pm
January 12, 2016

Class Location & Time
2–3.15 pm, Crawford 610.

Course Objectives
• To discuss some of the central issues in contemporary philosophy of science.
• To explore presuppositions behind science and engineering, and their relationship to society.
• To enrich the understanding of scientific work.

Required Texts

Class Presentations
Each student will make presentations on some of the reading assignments. Presentations should answer at least the following questions:
A. What does it say? A (brief) recap of the text’s central argument(s);
B. What doesn’t make sense? What questions do you have after a first reading?

Contribution to the Class
The participation quotient is proportional to the number of weeks in which you make a contribution to the class. Contributions include, but are not limited to:
• delivering a class presentation;
• participation in discussion;
• asking questions;
• work on the class wiki, aberdein.pbworks.com.

Grading & Evaluation
As usual, 90%+ = A; 80–89% = B; 70–79% = C; 60–69% = D; 0–59% = F.
1. Midterm Exam (Eighth Week);
2. Final Exam (Wednesday 4th May, 3.30–5.30 pm)—the date of this exam has already been fixed and cannot be changed;
3. Contribution to the class: (Short assignment grade(s) + Presentation grade) × Participation quotient;
4. 3000 Word Essay (Due Fourteenth Week).

will each contribute one quarter to the overall grade.
Course Regulations

- Students are expected to attend all classes.
- All personal electronic devices to be muted in class and switched off completely during exams.
- Essays to be word processed, with a full bibliography, and to be submitted in paper and electronic form. Late essay submissions will be penalized by one letter grade. Essays late by more than one class session will receive a grade of 0.
- Essay submission is final: whatever you submit as your essay is your essay.
- Any form of academic dishonesty will result in a grade of 0 for the course. You are responsible for knowing all Florida Tech policies on academic dishonesty (see www.fit.edu/current/documents/plagiarism.pdf).
- ‘Florida Tech has contracted with a private company, TurnItIn.com, to help identify plagiarized papers. Essays written for this course will be submitted electronically to the TurnItIn.com web site for screening prior to being graded. Essays that are not submitted to TurnItIn.com will not be graded. Your instructor will show you how to use this service.’

Course Topics

Topics discussed will include the following.

Science and Pseudoscience What is science? How does science differ from other forms of knowledge? What are scientific theories, and how may they be distinguished from pseudoscience?

Induction What is inductive inference? Can it provide a sound basis for scientific knowledge?

Theory and Observation Observations are often said to confirm or refute scientific theories. But is the distinction between theory and observation so straightforward? Can observation settle disputes between theories, or is the choice always underdetermined?

Explanation Science aims to be explanatory. But what is an explanation? The more explanatory theories are, the more likely they are to be accepted as true. Why? Can this practice be justified?

Scientific Method and Progress Is science really progressive and cumulative? Is there a scientific method responsible for this?

Realism and Anti-realism Can science give us knowledge of an unobservable reality? If it does, then how does it do so? If it does not, then how does it achieve objectivity? Is science really progressive and cumulative? Is there a scientific method responsible for this?

Laws of Nature Fundamental scientific principles are often called laws of nature. What does this mean? Are such laws more than just accidental regularities?

Science and Values What are the ethics of science? Should society restrict scientific research that questions its values? Do women do science differently than men?

Simulation Argument Might we be living in a computer simulation?